A Warped Ring in Space: Studying the HR 4796 Disk in the Mid-IR from Gemini South

R. Scott Fisher[1], C.M. Telesco[2], and M.C. Wyatt[3]
(Email: sfisher@gemini.edu)

[1]Gemini Observatory Northern Operations Center, Hilo, Hawaii
[2]Department of Astronomy, University of Florida, Gainesville, Florida
[3]Royal Observatory, Edinburgh, Blackford Hill, Edinburgh, United Kingdom

We present new mid-IR (18 and 25 μm) observations of the HR 4796 circumstellar disk made with TReCS on Gemini South. The high spatial resolution offered by the large aperture of a ground-based telescope allows us to study the detailed distribution of dust in this nearby (67 pc) debris disk at the sub-arcsecond level. Taken under excellent sky conditions from the southern hemisphere, our data represent the highest resolution images of this disk currently available in the mid-IR. We were motivated to re-observe HR 4796 to search for and/or confirm an asymmetry previously seen (at $\sim$1.8 σ) in the thermal emission from the disk (*Telesco et al.*, 2000). In *Telesco et al.* (2000), we proposed that the asymmetry, "Pericenter Glow", was due to a displacement of the entire HR 4796 disk by the effects of the stellar companion (HR 4796B) or a planet on a slightly elliptical orbit embedded in the disk. Our new observations confirm that the thermal asymmetry does indeed exist, however, they also open the door for other interpretations of the observed non-uniformity. In this poster we discuss our recent observations and discuss how they shed new light on this archetypal debris disk.

[a] Telesco, C.M., Fisher, R.S., Piña, R.K., Knacke, R.F., Dermott, S.F., Wyatt, M.C., Grogan, K., Holmes, E.K., Ghez, A.M., Prato, L., Hartmann, L.W., and Jayawardhana, R., Deep 10 and 18 Micron Imaging of the HR 4796A Circumstellar Disk: Transient Dust Particles and Tentative Evidence for a Brightness Asymmetry, *ApJ*, **530**, 329–341, 2000.